TEXTILE TECHNOLOGY DIGEST

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ABSTRACTS

FIBERS A

A frank look at the fiber future

G. S. Buck, Jr. *Modern Textiles Mag. 36:* 76-81 (June, 1955).

The present position of fibers, the price potential of cotton, promotion, performance, planning cotton utilization research, developments in synthetics, blending, the question of price reductions for synthetics, promotion of man-made fibers, and research as the deciding factor are discussed.

NATURAL FIBERS A 1

Evaluation of yarn properties and processing performance of Pima S-1 cotton

J. J. Brown, N. A. Howell, L. A. Fiori and J. E. Sands (Southern Regional Research Labratory). *Textile Research J. 25:* 404-414 (May, 1955).

Results are reported of a pilot plant evaluation of Pima S-1 cotton using an Egyptian variety, Karnak, and an American-Egyptian variety, Pima 32, as controls. The three cottons were processed alike on conventional equipment into a range of relatively fine single- and 2-ply yarns. It was found that, within the limits of this study, the general processing performance of the Pima S-1 was equal to that of the Karnak and Pima 32 cottons. Regardless of the organizational variables used in the evaluation, the Pima S-1 cotton produced yarns of better appearance and uniformity than did the other two cottons. Also, yarns made from Pima S-1 were stronger than those made from Karnak, and were generally equal in strength to yarns made from Pima 32. Double creel produced stronger and more uniform yarns than did single-creel spinning for all the cotton varieties tested. The performance of Pima S-1 in 2-ply constructions was equal to that of the two control cottons. The general response of Pima S-1 to mercerizing and to subsequent dyeing was slightly better than that of the other cottons. 5 references.

Commercial spinning tests on Pima S-1

B. Johnson (National Cotton Council of America). *Textile Research J. 25:* 396-403 (May, 1955).

Fourteen plants making a wide range of yarn numbers cooperated in commercial spinning tests of a new extra-long staple cotton, Pima S-1. Egyptian-grown Karnak was generally used as the control cotton. The fiber properties of Pima S-1 show it to be slightly shorter and slightly weaker than Karnak, but it is coarser and has superior fiber-length uniformity as compared to Karnak. In the manufacturing factors of waste losses, noils removed, and ends down, Pima S-1 is equal to or slightly better than Karnak. Although Pima S-1 appears to make fewer neps than previous commercial strains of American-Egyptians, it usually makes a few more neps than Karnak. All mills were uniformly successful in making stronger singles yarns from Pima S-1 than from Karnak. The average yarn strength increase was 14%. Yarn grades were equal to or better than those made from Karnak. On the average, plied yarns made of Pima S-1 were 13% stronger than were those made of Karnak.

Effect of an excessive gin-drying temperature of cotton on yarn quality and mill processing

W. J. Hart, T. L. W. Bailey, Jr., W. R. Keyser, Jr. and J. Compton (Institute of Textile Technology). *Textile Research J. 25:* 415-421 (May, 1955).

A project was carried out by four mills on cotton of known history, ginned and stored under carefully controlled and observed conditions, to obtain more precise information as to the extent and cost to cotton mills of fiber damage caused by excessive commercial gin drying. It was found that overheating of cotton during gin-drying adversely affects mill processing, that it causes significant processing cost losses, and that it lowers yarn quality. Tables, graphs. 11 references.

Cotton fiber length distribution—an important quality factor

H. Wakeham (Textile Research Institute). *Textile Research J. 25:* 422-429 (May, 1955).

Recent cotton processing studies conducted by Textile Research Institute have demonstrated that the presence of a large number of short fibers in cotton causes appreciable increases in processing wastes, excessively uneven rovings and yarns, less efficient spinning, and weaker yarns than would otherwise be expected. The present paper outlines

various methods of measuring fiber length distribution and of indicating excessive quantities of short fibers in the sample. Four case histories demonstrating the inferior quality of cottons containing excessive quantities of short fibers are described. These show the effects of improper drying prior to ginning, overprocessing during cleaning, and microbiological attack (cavitoma). In all cases the importance of fiber length distribution as a cotton quality factor is emphasized. 6 references.

Factors affecting the fluorescence of cotton

G. H. Lourigan (North Carolina State College). *Am. Dyestuff Reptr. 44:* P348-P349, P359 (May 23, 1955).

It has already been observed by others that raw cotton from different crops and cotton of different ages differ in the kind and degree of fluorescence that can be observed visually or photographically under ultraviolet radiation. The author's work indicates that cottons of different dyeing properties also differ in fluorescence. To get some fundamental information on the fluorescence of cotton that may lead to further study of the relation of fluorescence to dyeing, he has conducted experiments which indicate that the fluorescence of cotton increases with experimental degradation and that the degradation products are more water-soluble than pure cellulose. 3 references.

A scientist in industry. Part 2. The nature of the cotton fiber

F. P. Slater. *Textile Recorder 73:* 81-83 (May, 1955).

The utilization of Soviet long-stapled cotton in yarn and sewing thread

H. P. Hartenhauer. *Textil- u. Faserstofftech. 5, No. 1:* 3-7 (1955); *in German.* Through *Brit. Cotton Ind. Research Assoc. 35:* 291 (1955).

The long-stapled Soviet cotton fiber was found to be a valuable raw material as compared with the average Egyptian cottons. The scientists of the Soviet Union are trying to improve further the quality of various fiber types by increasing their strength and fineness and reducing their neppiness.

Ultrasonics successfully applied to decortication of bast fibers

Am. Textile Reptr. 69: 17-19 (May 26, 1955).

The use of high frequency sound to separate ramie fibers may be the answer to its processing.

Differential friction of wool

P. Grosberg (Leeds University). *J. Textile Inst. 46:* T233-T246 (April, 1955).

The frictional properties of animal fibers differ from those of all other fibers in that the friction when the fiber is rubbed towards the root end is greater than the friction when it is rubbed towards the tip. This property is generally thought to play an important part in the felting of wool. In this paper, theories advanced by Makinson and Mercer to explain the Directional Frictional Effect (D.F.E.) of wool are critically examined. A new hypothesis is advanced based on the anisotropic elastic properties of moist keratin—the hypothesis is then quantitatively developed and the resulting equation is found to fit the experimental results of several workers. 26 references.

MAN-MADE FIBERS A 2

12 fiber properties for cotton-system processing

N. Truslow. *Textile World 105:* 126-127 (June, 1955).

Synthetic fibers must have certain minimum fiber properties to be processed commercially on the cotton system. Reasons for these twelve fiber requirements are discussed.

Fiber data sheets: co-polymer fibers

P. A. Koch. *Fibres 16:* 174-176 (May, 1955).

Development, manufacture, properties, applications, patents, etc. 43 references.

Spun-colored fibers

G. V. Lund (Courtaulds (Alabama) Inc.). *Am. Dyestuff Reptr. 44:* P320-P322 (May 9, 1955).

The historical development, production, and properties are discussed of fibers colored before chemical spinning by incorporation of coloring matter into the fluid material from which the fibers are spun. The advantages, limitations, and techniques of use of these fibers are described, and an estimate of their future place in the textile economy is attempted. 16 references.

Studies in the formation of fiber from groundnut protein

W. E. F. Naismith and R. H. K. Thomson. *J. Appl. Chem. 5:* 192-196 (April, 1955).

A new study has been made of the manufacture of a textile fiber from groundnut protein. This includes a series of ultracentrifuge examinations of the protein at each stage of the process from the groundnut meal to the coagulated fiber. It was seen that little change in the protein occurred until its reaction with sodium hydroxide

gave a spinning solution. An accompanying study was made of the protein, caustic soda and water solutions used for extrusion, observing the rheological changes which occur with change of composition and relating these to the parallel ultracentrifuge examination. 10 references.

Arnel: man-made fiber of cellulose triacetate

Am. Textile Reptr. 69: 73-77 (May 19, 1955).

The properties and uses of Arnel are surveyed.

Glass fibers: their manufacture, properties and uses

A. de Dani (Fibreglass Ltd). *Chemistry and Industry No. 18:* 482-489 (April 30, 1955).

A paper read at the annual meeting of the Society of Chemical Industry in July 1954. 9 references.

New kind of nylon

Allied Chemical and Dye Corp. *Textile Age 19:* 34-35 (June, 1955).

A new kind of nylon, a polycapramide, which makes possible the dyeing of 100 per cent nylon fabrics two colors in a single bath, or nylon mixtures with other fibers three or more colors in a single dye bath is distinguished by unusual whiteness, a great affinity for all classes of dyestuffs, and a capability of being dyed to uniform level shades.

Data concerning synthetic fibers. Part 3. Orlon

P. S. Nagar. *Man-Made Textiles 31:* 60-61 (May, 1955).

Man-made fibers data sheets: polyester fibers: Terylene, Dacron

P. A. Koch. *Modern Textiles Mag. 36:* 38-44, 62,100 (June, 1955).

Data, including history and development, manufacture, chemistry, properties, products, applications, patents, etc. 64 references. See also *TTD 12:* 95 (March, 1955).

YARN PRODUCTION B

The evolution of a pirn winder

D. Brunnschweiler. *Skinner's Silk and Rayon Record 29:* 494-497 (May, 1955).

Pirn winder development over the past 70 years is discussed with specific examples. Photographs and diagrams.

The spinning of Celafibre

British Celanese Ltd. Manchester, 1954. 42 p.

A technical bulletin on the processing of the cellulose acetate staple, Celafibre.

OPENING, PICKING, FIBER PREPARATION B 1

Cotton opening and picking. 3rd ed.

G. R. Merrill. Lowell, Mass.: 1954. 102 p. $2.50.

This second revision of a text for Lowell Technological Institute has included much new equipment and deleted some machinery now obsolete with builders and little used by mills. It is available from the author at 364 Varnum Avenue, Lowell, Massachusetts.

The SRRL carding cleaner

G. J. Kyame and M. Mayer, Jr. (Southern Regional Research Laboratory). *Textile Research J. 25:* 476-480 (May, 1955).

A detailed description is given of an experimental machine somewhat similar to a downstroke buckley-type cleaner, but with the customary beater replaced with a licker-in type of carding cylinder. Also described is an improved feed system using a novel type of roll, called an antipluck roll. The new feed roll permits rapidly advancing a relatively thin layer of cotton to the carding cylinder, while simultaneously resisting the efforts of the carding cylinder to pull the cotton away. This results in opening the cotton to such a degree that cleaning efficiencies as high as 60-78% in a single machine are feasible at production rates of 400 lb per hr. Data are presented to show the performance achieved in a quarter-size experimental machine.

Automatic weighing arrangement

H. V. Tetlow and J. W. Radcliffe. *Textile Mfr. 81:* 248-251 (May, 1955).

Features of a new machine devised to weigh wool stock prior to oiling are described. Capable of dealing with exceptionally large quantities of materials, the weighing apparatus is said to have more or less eliminated variations in oil content. Photographs. Diagrams.

CARDING AND COMBING B 2

The Schorsch-Mayer single card set

R. Fahrbach. *Textil-Praxis (English ed.) No. 1:* 3-7 (March, 1955).

See *TTD 12:* 189 (1955).

Woolen carding machinery

H. E. Gartside. *Textile Merc. 132:* 721-726 (April 29, 1955).

The various parts of woolen cards and the function of each are discussed and different types of woolen carding machines are described.

Theoretical examination of the effect of all-steel card clothing

B. Schaffer. *Faserforsch. u. Textiltech. 5, No. 12:* 522-527 (1954); *in German.* Through *Brit. Cotton Ind. Research Assoc. 35:* 290 (1955).

The advantages observed with all-steel card clothing comprise: (a) greater intervals between the stripping times of the drums and polishing times of the card clothing (at intervals of 1-2 years as compared with 1-2 weeks for elastic card clothing); (b) increased production (by 15-20 per cent) without impairment of quality; (c) greater uniformity of the card slivers; reduced waste formation.

How to set cards

P. C. Kochhar (Industrial Rayon Corp.). *Textile World 105:* 144-147 (June, 1955).

This second article of a series of pictures and captions on how to set a cotton card covers lickerin, cylinder screens, and lickerin screen.

Card clothing and its importance for the spinning process

G. Schlese. *Textil-Praxis 10, No. 1:* 23-29 (1955); *in German.* Through *Brit. Cotton Ind. Research Assoc. 35:* 248 (1955).

A historical survey is made of the development of the carding process and constructional details are given of modern card clothing. Different types of card wire bands and various methods of setting the wires are described, and card-mounting weights for worsted, wool and cotton cards are listed.

New construction of web dividers

W. Petersen. *Textil-Praxis 10, No. 1:* 17-18 (1955); *in German.* Through *Brit. Cotton Ind. Research Assoc. 35:* 248 (1955).

The new construction described makes it possible to increase the running time of the lap by 100 per cent, and the longer bobbins accommodating increased amounts of roving contribute, among other advantages, to increased yarn regularity. The web is fed over a feed lattice whose velocity is adjustable to that of the feed rollers.

Control of carding wastes

J. F. Bogdan (North Carolina State College). *Textile Research J. 25:* 377-385 (May, 1955).

Carding wastes can be reduced on the average by about one-half (2-3/4% of lap weight) without lowering yarn appearance or yarn strength. Flat strips and motes and fly comprise about 3/4 of the total carding wastes; it is in the control of these wastes that the greatest saving is realized. 2 references.

Reducing waste at the card

E. A. Bentley (Swift Manufacturing Co.). *Textile Research J. 25:* 385-388 (May, 1955).

This paper is concerned with mill application of the North Carolina State College carding recommendations.

A method of reducing card waste

H. M. Brown, J. L. Thompson and J. S. Graham (Clemson College). *Textile Research J. 25:* 388-392 (May, 1955).

This is a progress report on a preliminary card study undertaken at the Clemson College School of Textiles. A plan was proposed in which the flats were to be run in two sections: one, a very short section at the rear that would be run at a relatively high rate, and the other, the main section, to be run very slowly. Studies were made with two different cottons. All wastes and the card sliver were weighed and analyzed by the Shirley Analyzer.

High-production carding

S. H. Sherman (United States Rubber Co.). *Textile Research J. 25:* 393-396 (May, 1955).

Card modifications are described which resulted in higher production, lower cost, and improved quality. Tables, diagrams, etc. 13 references.

Pressed felt manufacture. Part 2. Carding

K. L. Foulds. *Textile Mfr. 81:* 244-247 (May, 1955).

Carding technique, machinery requirements and operational details are discussed.

Irregularity in the slivers from the ribbon lap machine and in the individual combed slivers

W. Wegener and J. Delventhal. *Textil-Praxis 10, No. 1:* 29-32 (1955); *in German.* Through *Brit. Cotton Ind. Research Assoc. 35:* 248 (1955).

Additional devices necessary for testing the regularity of slivers either by means of the sliver tester WPG (developed by the Deutscher Spinnereimaschinenbau Ingolstadt) or by the Uster regularity tester are described. Since the irregularities in slivers from the ribbon lap machine appear again in the combed sliver, the authors stress the importance of systematic testing for obtaining optimum conditions.

Cotton combing. 3rd ed.

G. R. Merrill. Lowell, Mass.: 1955. 89 p. $2.50.

This second revision of a text used at Lowell Technological Institute includes a section on the Saco-Lowell comb. It is available from the author at 364 Varnum Avenue, Lowell, Massachusetts.

Quality improvement in 3- and 4-cylinder spinning by partial combing

R. Gunter, H. P. Hartenhauer and E. Tittmann. *Textil- u. Faserstofftech. 4, No. 12:* 711-715 (1954); *in German.* Through *Brit. Cotton Ind. Research Assoc. 35:* 290 (1955).

Experiments are reported, which were carried out on inferior quality cotton with the purpose of producing yarn which is qualitatively superior to carded yarn. It was found that by partial combing of inferior cotton the quality of the yarn is improved as expressed by its regularity, reduction in yarn breakages by about 25 per cent and, consequently, increase of production by 11 per cent.

DRAWING AND ROVING B 3

The nipping and drafting strengths in drawing

W. Stahlecker. *Textil-Praxis (English ed.) No. 1:* 7-10 (March, 1955).

See *TTD 12:* 191 (1955).

Means for increasing the draft on a 3-roller drawing system of the ring-spinning machine

A. Gutt, S. Dabrowski and S. Kurzyniec. *Prace Inst. Wlok. 4, No. 15:* 1-7 (1954); *in Polish.* Through *Brit. Cotton Ind. Research Assoc. 35:* 249 (1955).

On analyzing the performance of the drawing system with three pairs of drafting rollers it was found that it is possible to increase the partial draft in the back drafting field of the ring spinning machine by increasing and equalizing the field intensity of frictional forces. These conditions are obtained by covering the top rollers with a self-weighting elastic substance with high friction coefficient (e.g. plasticized polyvinyl chloride). Practical spinning experiments have shown that it is possible to produce in this way a warp yarn of Nm 40 from roving Nm 3.1 (Na = 1.83), at a total draft of 12.9, the yarn quality being equal to that spun on the Le Blan-Roth drafting system. The highest draft obtained was 17.4 when spinning yarn Nm 54 from the same roving as above. The partial draft in the back drafting field reached a maximum of 2.

Abbreviated spinning process in preparatory spinning of cotton, with particular reference to the chemical fibers

H. Nuding. *Reyon, Zellwolle u. Chemiefasern No. 12:* 750-755 (1954); *in German.* Through *Brit. Cotton Ind. Research Assoc. 25:* 249 (1955).

In this paper, presented at the International Conference for Textile Technology, September, 1954, in Barcelona, the author discusses the use of (1) high-drafting systems on speed frames, (2) the production of finer draw-frame slivers by higher drafts in the last drafting zone or by dividing the lap at the delivery end of the machine, and (3) spinning directly from draw-frame slivers by using high-drafting systems on the ring-spinning machines. The machinery developed for this purpose in England, U.S.A., Switzerland and Germany is reviewed.

Determination of the forces acting on the fibers during drafting

A. G. Sevostyanov and B. K. Kucherov. *Tekstil. Prom. 14, No. 9:* 16-19 (1954); *in Russian.* Through *Brit. Cotton Ind. Research Assoc. 35:* 249 (1955).

The apparatus for measuring the drafting forces during drawing is described and illustrated, and five examples are described of measurements carried out on cotton slivers and rovings by varying the experimental conditions.

The motion of floating fibers during drafting of worsted slivers

D. S. Taylor (Wool Industries Research Assoc.). *J. Textile Inst. 46:* T284-T294 (April, 1955).

The motion of floating fibers during drafting has been the subject of much theoretical work and, on examination, these theories fall broadly into two classes, (a) those in which assumptions are made about the form of fiber movement (without reference to fiber properties), or (b) those in which the properties of the fibers are considered in relation to their possibility of causing fiber movement. In this paper, the radio-active method used to detect fiber movement during drafting was that described earlier by the author *(J. Textile Inst. 45:* T310 (1954)). The reasons for the acceleration of floating fibers are discussed in detail. The importance of considering each fiber individually is stressed and it is shown that, when this is done, the predicted and observed fiber movements agree. Possible means of controlling floating fibers are considered and a new explanation of the formation of faller-bar marks is suggested. 7 references.

Woolen ring frame spinning. Part 4. The relation between twist and draft

P. P. Townend and B. Jowett. *Wool Rev. 27:* 34-35 (May, 1955).

The function of the jaws as the twisting agent

and the function of the notches as a twisting agent.

SPINNING, WINDING, TWISTING B 4

End breakages in worsted spinning. Part 3

P. Townend and L. T. Yu. *Textile Recorder 73:* 84-85 (May, 1955).

The authors relate the many variables which cause yarn irregularities with the end breakage rate. 3 references.

The mill of today. Part 42. Section 1. Facts about yarn carriers

R. Z. Walker. *Textile Bull. 81:* 74-77 (May, 1955).

The function and design of the yarn carrier are analyzed.

Textile industry. Part 1. Spinning and twisting. (Textilindustrie. I. Spinnerei und Zwirnerei)

A. Blumcke. Berlin: Walter de Gruyther and Co., 1954. 111 p. *In German.*

Discussion of the following aspects of spinning and twisting: (1) fibers, (2) cotton spinning, (3) flax spinning, (4) woolen and worsted processing, and (5) other special processing.

Cotton spinning frame eliminates roving, produces quality yarns

O-M Spinning Machine Co., Osaka, Japan. *Am. Textile Reptr. 69:* 23, 61-62 (May 12, 1955).

This Japanese model spins directly from drawing sliver which is fed from small cans placed directly on the machine. It can spin yarn from 12s to 120s, obtain a draft up to 700, and is claimed to produce yarn at least equivalent, and usually superior, to that spun by conventional American machinery. Diagram. Photographs.

False twist crimping of nylon

British Nylon Spinners Ltd. *Textile Merc. 132:* 852.854 (May 20, 1955); *Textile Wkly. 55:* 1540-1541 (May 20, 1955).

Very high, false twists are inserted. They are applied at very high spindle speeds. The twists are permanently heat set into the thermoplastic nylon yarn before the untwisting part of the operation takes place. Photographs. Diagram.

YARNS B 5

Speciality acetate yarns. Part 2. Some typical applications

J. Willock and H. M. Averns. *Man-Made Textiles 31:* 62-67 (May, 1955).

Tek-Ja: a new approach to twistless yarns

R. D. Wells (Bates Manufacturing Co.). *Textile Research J. 25:* 481-486 (May, 1955).

This discussion is concerned with experience with the Tek-Ja process and yarns at Bates Manufacturing Company and is limited to cotton and, almost exclusively, to temporary adhesives such as polyvinyl alcohol. Processing, end-uses, and economic considerations are covered.

Processing equipment for Tek-Ja yarn

J. W. Powischill (Proctor and Schwartz, Inc.). *Textile Research J. 25:* 486-489 (May, 1955).

Stretch and bulk yarns

J. H. Blore. *Textile World 105:* 94-97 (June, 1955).

Features and uses of stretch, bulk and high twist yarns are discussed. Thirteen diagrams show how the fibers lie in the different yarns.

FABRIC PRODUCTION C

Dacron felt

Am. Textile Reptr. 69: 10, 53 (May 12, 1955).

A new felting process applicable to synthetic fibers is described. Diagram.

Developments in weaving with special reference to chemical fibers

E. Honegger. *Melliand Textilber. 36, No. 1:* 24-30 (1955); *in German.* Through *Brit. Cotton Ind. Research Assoc. 35:* 292 (1955).

Descriptions and illustrations are given of the Kidde compensating thread-tension gear for the Scharer winding machine, the Schweiter compensating tappet gear, vacuum-regulated creel disc brakes (Ruti), the Benninger cone-warping machine with outward-running roller, the Zangs automatic bobbin-changing mechanism without superstructure, the Benninger four-color loom with automatic bobbin changer, and other improvements of various loom parts.

WARPING, SLASHING, YARN PREPARATION C 1

Steaming of wool yarns

G. Mazingue, P. Desprets and N. van Overbeke (Chambre Commerce, Roubaix). *Bull. Inst. Textile France No. 46:* 21-28 (1954); *in French.* Through *Chem. Abstracts 49:* 6611 (May 10, 1955).

Steaming or humidification of wool to set twist

can be carried out effectively at 60-80°. Higher temperatures increase yellowing and alteration of dye affinity.

Performance of the friction clutch on the sizing machine

V. A. Blyuer. *Tekstil. Prom. 14, No. 12:* 20-23 (1954); *in Russian.* Through *Brit. Cotton Ind. Research Assoc. 35:* 292 (1955).

It is shown that the efficiency of the friction clutches on sizing machines depends not upon the type of clutch used but on the relationship between the diameters of the shaft and the warp-beam flange. The loss of efficiency is associated with a considerable temperature increase and abnormal performance of the mechanism, and increases proportionally to the drying power of the machine. These disadvantages can be eliminated by combining the friction clutch with a d.c. motor.

Factors affecting the absorption of size

K. Ramaszeder. *Textil-Praxis 10, No. 1:* 38-44 (1954); *in German.* Through *Brit. Cotton Ind. Research Assoc. 35:* 253 (1955).

It is shown that the yarn length which comes into contact with the sizing bath is proportional to the depth of dipping and the radius of the dipping roller. A recent development is the introduction of a fluted dipping roller, between the ribs of which the sizing liquor is able to flow freely and saturate the yarn more uniformly. Devices for prolonging the time of saturation, improvements in squeezing rollers and sizing cloth, and the reduction of the sizing-trough capacity are discussed, and a schematic illustration is given of an automatic sizing machine constructed on the latter principle.

Preparatory machinery for weaving; a handbook for spinner and weaver. (Vorbereitungsmaschinen fur die Weberei: ein Handbuch fur Spinner und Weber)

J. Schneider. Berlin: Springer-Verlag, 1955. 316 p. *In German.*

A thorough and exhaustive presentation of the practical and theoretical aspects of yarn preparation, from spooling through slashing.

Rationalized warping of warps with large pattern

H. Petzold. *Textil-Praxis (English ed.) No. 1:* 20-22 (March, 1955).

See *TTD 12:* 11 (1955).

Ruti sectional warper and vacuum creel

A. J. Gasser. *Textil-Praxis (English ed.) No. 1:* 13-19 (March, 1955).

The history of winding and warping. Part 1. Early history

W. English. *Textile Recorder 73:* 75-77 (May, 1955).

This is the first of a series of articles which will review the development of winding and warping machinery and practice from its beginnings in early history up to the present day.

WEAVING C 2

Determination of the shuttle race by photography

L. V. Zevakin. *Tekstil. Prom. 14, No. 12:* 23-24 (1954); *in Russian.* Through *Brit. Cotton Ind. Research Assoc. 35:* 293 (1955).

The advantages of the simple photographic method described are due to the fact that the undistorted picture obtained requires no additional work and it is only necessary to fit into the shuttle a light source (flash-light) in place of the bobbin. Illustrations are given.

Fur lining for shuttles

R. B. Pressley. *Rayonne et Fibres Synthet. 11, No. 1:* 17-24 (1955); *in French.* Through *Brit. Cotton Ind. Research Assoc. 35:* 293 (1955).

It is shown that considerable yearly economies can be effected by choosing the most suitable fur lining, treating it before and after insertion in the shuttle, using light and cheap furs, and measuring, trimming, and sizing the lining before placing it in the shuttle.

Uneven cloth

W. C. Westbrook. *Textile World 105:* 136-137,228 (June, 1955).

Two basic things can make uneven cloth—bad yarn and faulty loom motions.

The possibility of improving productivity by using circular change box motions in the construction of change box cards

A. Sucher. *Textil- u. Faserstofftech. 5, No. 1:* 27-32 (1955); *in German.* Through *Brit. Cotton Ind. Research Assoc. 35:* 293 (1955).

The mechanism described comprises the following advantages: (1) all shuttles run through all operating chambers; (2) the pick of all the shuttles takes place in the order of their insertion; (3) the number of shuttles corresponds to the respective order of picks or to the mixing ratio required; (4) it is possible to combine the circular change with several additional shuttles which can simultaneously occupy the first chamber on the left; (5) excessive lift of the box is completely eliminated. The circular box motion can be used for weaving a great range of fabrics.

Method for measuring shuttle speeds

R. Gibson, G. Roberts and M. Townsend (Wool Industries Research Assoc.). *(Letter to the editor). J. Textile Inst. 46:* T295-T298 (April, 1955).

New method for the preparation of two-colored jacquard point paper drafts with interwoven colors

G. Krug. *Textil-Praxis 10, No. 1:* 59-63 (1955); *in German.* Through *Brit. Cotton Ind. Research Assoc. 35:* 254 (1955).

The method described comprises the preparation, from a black-white photograph, of an enlarged raster which shows the color components separately in concentrated form. Each raster opening represents one weave repeat, so that the photograph must be made over as many raster openings as there are to be weave repeats in the point-paper draft. The preparation of multi-colored patterns can be based on this method.

Additions and drives for the individual control of looms

K. Kreisel. *Reyon, Zellwolle u. Chemiefasern No. 12:* 764-770 (1954); *in German.* Through *Brit. Cotton Ind. Research Assoc. 35:* 253 (1955).

Characteristics of various driving elements (connections between motor and loom) are described, including slipping and friction clutches, belt drives with swivel bearings and tension rollers, and V-belt drives. Their advantages and disadvantages are discussed and various additional constructions (e.g. for housing the motor, loom switches) are briefly pointed out.

Warp tension and weaving control. Part 1

J. Starke. *Textile Mfr. 81:* 236-239 (May, 1955).

Warp tension is determined by the following factors (a) beam diameter, (b) diameter of collars, (c) chain or rope tension, and (d) coefficient of friction between the chain and ruffle. Various warp tension factors are discussed. Diagrams.

Weaving defects. Part 2

C. O. Cronic. *Textile Ind. 119:* 144-145 (June, 1955).

Warp threads cut by temple, buttonhole selvages, corded selvage, stringy selvage, doublings in filling, and oily warp threads.

Effect of reed adjustment on the reduction of breakages

P. I. Anufriev. *Tekstil. Prom. 14, No. 10:* 29-31 (1954); *in Russian.* Through *Brit. Cotton Ind. Research Assoc. 35:* 293 (1955).

Experiments have shown that a suitable choice and adjustment of the reed reduces the number of warp-thread breakages and increases production by 25-50 per cent.

Dobby shedding

A. T. C. Robinson. *Skinner's Silk and Rayon Record 29:* 520-523 (May, 1955).

A survey of dobbies and their mechanism and action.

An open shed jacquard

Samuel Dracup and Sons Ltd. *Textile Merc. 132:* 769-771 (May 6, 1955); *Textile Wkly. 55:* 1352-1355 (May 6, 1955).

Diagrams and photographs illustrate a revolutionary open shed jacquard mechanism.

The possibility of increasing loom production on the basis of the theory of yarn strength

M. S. Morodovski. *Tekstil. Prom. 14, No. 10:* 23-29 (1954); *in Russian.* Through *Brit. Cotton Ind. Research Assoc. 35:* 294 (1955).

The causes of yarn breakages on the loom are considered. The ultimate strength of warp yarns and their cyclic plasticity are regarded as quality criteria for increasing loom production. The ultimate strength must be greater than the maximum tensioning of the yarn on the loom, and the cylic plasticity should not increase above a minimum value at the number of cyclic deformations to which the yarn is subjected during its passage from warp- to cloth-beam. The loom setting should be standardized so that the maximum tensioning does not exceed the ultimate strength of the yarn permitting the deformation necessary for attaining the fabric density required. For this purpose it is necessary to examine the ultimate strength of yarn by means of pulsators and to measure the warp-thread tension by the use of tensographs.

Changes in loom construction

H. Wagenknecht. *Textil- u. Faserstofftech. 5, No. 1:* 22-26 (1955); *in German.* Through *Brit. Cotton Ind. Research Assoc. 35:* 292 (1955).

The author reviews in this article improvements in loom constructions, such as a yarn-tensiometer, a motor fixed on brackets at the side of the loom, looms without superstructure, looms with a cam dobby, the Sulzer weaving machine with an available weaving width of 330 cm and a speed of up to 210 picks/min (weaving simultaneously three webs of material), and circular looms.

Suggestions for the development of a new gripper loom

A. Barnick. *Textil-Praxis 9, No. 11:* 1044-1048 (1954); *in German.* Through *Brit. Cotton Ind. Research Assoc. 35:* 293 (1955).

Constructional details are given of a gripper loom (covered by German Pat. 855 679 entitled: Loom with device for inserting and cutting off the weft threads and with a gripping shuttle moving uni-directionally in a circle). As compared with the usual looms with heavy bobbin-bearing shuttles, a heavy lay (with a stroke of 130-160 mm) and correspondingly heavy loom framing, the loom described, which has a small light shuttle (200-300 g) and a light but stable lay (stroke 40-60 mm), presents many advantages, such as low power consumption, small friction and wear and tear, low consumption of lubricant, reduced noise and oscillation, etc.

Measurements on the loom. Part 3.

H. Stein and W. Rohs. *Textil-Praxis 9, No. 11:* 1039-1044 (1954); *in German.* Through *Brit. Cotton Ind. Research Assoc. 35:* 293 (1955).

Measurement of the weft tension by means of an oscillograph is discussed and stroboscopic examination of the shuttle movement and the devices used are described. The advantages and uses of the stroboscopic devices are enumerated.

Automatic v. non-automatic looms

P. A. Mars and D. Leech (British Rayon Research Assoc.). *Textile Merc. 132:* 728 (April 29, 1955).

A cost comparison relating to spun rayon.

KNITTING C 3

Warp knitted fabrics on F. N. F. machines

J. Rab. *Skinner's Silk and Rayon Record 29:* 509-512 (May, 1955).

Knitting directions are given for four mounted fabric samples.

FABRICS C 4

The effect of warp closeness and picks per inch on the shrinkage of viscose rayon fabrics

J. Hajek. *Textil- u. Faserstofftech. 5, No. 1:* 48-49 (1955); *in German.* Through *Brit. Cotton Ind. Research Assoc. 35:* 306 (1955).

Experiments with hank-sized viscose yarn (low-twisted) and rep material produced from it showed that the viscose warp is not stretched during weaving and that the shrinkage of the finished fabric increases with increasing ratio of warp closeness to number of picks. The shrunk fabric is stronger than the unfinished grey fabric.

Crepes. Part 5. Experimental fabrics (concluded)

D. C. Snowden and G. Hinchliffe. *Man-Made Textiles 31:* 50-53 (May, 1955).

A series of 22 experimental fabrics was woven with hard twisted yarns spun on the worsted system. The weaves used (12 in all) were carefully selected from the first set of fabrics to show the effect of highly twisted yarns on both good and poor patterns. 22 fabric photographs are given. The author concludes that the only reservation which seems to be required for good crepe effects in fine structures is that the same maximum float and same variety of float length show in both warp and weft, with preferably an irregularity of float distribution although some degree of patterning does not affect the creping unduly.

Faults in woolen manufacturing. Part 4

Textile Recorder 73: 78-80 (May, 1955).

In the fourth article of a series describing the identification of faults from the appearance of the finished cloth, the author discusses faults due to fiber impurities and processing stains and damage.

Design in woven structure. Part 30. A weft reversible structure for dobby loom weaving

D. C. Snowden. *Wool Rev. 27:* 35-37 (May, 1955).

Clothing for protection against radiant heat

I. M. Slade (British Iron and Steel Research Assoc.). *Research 8:* 179-182 (May, 1955).

Many tasks in industries using high temperature processes must be undertaken in the presence of intense radiant heat. The development of protective clothing designed to reflect heat radiation is described and some of its implications discussed. 5 references.

Effect of fabric structure on fabric properties

J. J. Brown and R. A. Rusca (Southern Regional Research Laboratory). *Textile Research J. 25:* 472-476 (May, 1955).

Research leading to the development of specialized fabrics for an agency of the Department of Defense is described. Requirements called for the fabrics to be highly resistant to the passage of water and air and to possess relatively high tensile and tear strength, yet to be light in weight. The effects of 7 types of fabric structure on the physical properties of the fabrics are discussed.

Of the constructions tested, basket weaves offered an acceptable compromise among the properties desired, with a 2/2 basket being highly water resistant without any chemical treatment and a 3/3 basket being slightly less water resistant and slightly more tear resistant. Regardless of the weave, as the picks per inch were increased, air and water resistance increased and tear strength decreased. Bleaching, mercerizing, and dyeing significantly decreased the tightness of the fabrics; however, application of a flame-retardant and water-repellent treatment almost restored the original resistance of the fabrics to the passage of water and air.

Uncommon design styles

Wool Record 87: 1036, 1039 (May 5, 1955).

Many of the uncommon design styles made on the basis of 2-and-2 twill are due to irregular heddle plans by which the continuity of the twill lines is broken every few threads. These are used alone and in combination with the simple twill from which they are derived as they present a striking contrast in weave development.

The crease resistance of cloth. Part 3. Crease resistance of cloths with various structures

S. Ikeda and S. Okajima. *J. Soc. Textile Cellulose Ind. Japan 10, No. 12:* 618-624 (1954); *in Japanese (English summary).* Through *Brit. Cotton Ind. Research Assoc. 35:* 306 (1955).

The crease resistance of 20 fabric samples with different structures, made from the same cotton yarn, was compared and a simple empirical relation was found between the crease resistance and the structure of the simpler construction.

Manufacture of corduroy

M. Meyer. *Textil- u. Faserstofftech. 4, No. 12:* 753-756 (1954); *in German.* Through *Brit. Cotton Ind. Research Assoc. 35:* 294 (1955).

The production and finishing of cotton velvets are discussed.

Manufacture of ribbons and elastic fabrics

M. De Ketele. *Textielwezen 11, No. 1:* 43-57 (1955); *in Dutch.* Through *Brit. Cotton Ind. Research Assoc. 35:* 294 (1955).

Selvages for straight, elastic, and fancy-edged ribbons are reviewed.

FINISHING AND CHEMICAL PROCESSING D

Processing Terylene, with special reference to heat-setting

Man-Made Textiles 31: 75-76 (May, 1955).

The effects of crease-proof-finishing upon the fastness to light in dyeing with direct dyestuffs

H. Hansen and H. G. Buddicker-Lons. *Textil-Praxis (English ed.) No. 1:* 33-37 (March, 1955.)

See *TTD 12:* 210 (1955).

Finishing fabrics of man-made fibers

J. H. Andreen and L. D. Swan (E. I. du Pont de Nemours and Co., Inc.). *Am. Dyestuff Reptr. 44:* P350-P354 (May 23, 1955).

The polymers from which the new fibers are made possess inherent properties which make the fibers subject to change by a variety of treatments, including mechanical working, heat, and chemical reaction. Innovations in finishing techniques based on these properties are aimed toward enhancing such fabric characteristics as liveliness, resilience, dimensional stability, handle, and resistance toward pilling. Several new finishing techniques are described. Practical methods for carrying them out on a commercial scale are outlined, and laboratory tests for evaluating the results of the treatments are discussed.

The coloring and wet processing of fabrics containing Fibrolane

R. C. Cheetham (Courtaulds, Ltd). *Dyer 113:* 741-746 (May 13, 1955).

Temperature effects in wool processing

Textile Mfr. 81: 252-256 (May, 1955).

These notes show how temperature control influences scouring, drying, dyeing and finishing generally. The author also points out where precautions need to be taken, together with suggestions for improvements where information is available. 15 references.

Quality improvement of textiles

E. Elod. *Textil-Praxis 10, No. 1:* 74-79 (1955): *in German.* Through *Brit. Cotton Ind. Research Assoc. 35:* 259 (1955).

In this review, the author discusses the factors affecting the quality of textiles, referring in particular to desizing, bleaching, optical brightening, creaseproofing, dyeing and drying. 14 references.

Developments in finishing equipment

J. Dalglish. *Can. Textile J. 72:* 51-53 (May 20, 1955).

Some remarks on finishing equipment for washing, dyeing, printing and drying. The Comasach stenter is described and illustrated.

CHEMICAL PROCESSES D 1

Effect of colloidal silica treatments on cotton processing characteristics and yarn quality

H. M. Brown, J. H. Langston and W. T. Rainey, Jr., (Clemson College). *Textile Research J. 25:* 462-471 (May, 1955).

The study was concerned with the application and evaluation of selected additive chemical treatments of various concentrations on (1) frictional properties of cotton fibers; (2) forces required to draft the fibers; (3) sliver, roving, and yarn properties; and (4) the efficiency of dyeing and finishing processes and how these and other processes affect the permanence of treatments. It is a report of the effect on cotton processing efficiency and yarn properties produced by use of additives such as colloidal silica and other compounds to increase the interfiber friction of cotton fibers. The dyeing and finishing phase of this investigation is to be reported upon at a later date. Tables, graphs, etc. 11 references.

Finishing Dacron-cotton blends

Textile Ind. 119: 148-149 (June, 1955).

Key point in dyehouse procedure is the care required to keep the goods free of creases so that they are not permanently set into the finished product.

Dry cleaning of cellulose triacetate

E. J. Davies and W. K. Rhodes (Dyers and Cleaners Research Organization). *(Letter to the editor). J. Soc. Dyers Colourists 71:* 143 (March, 1955).

The use of sequestering agents in the textile industry

G. Hude. *Rayonne et Fibres Synthet. 11, No. 1:* 97-103 (1955); *in French.* Through *Brit. Cotton Ind. Research Assoc. 35:* 295 (1955).

Properties of sequestering agents and their uses in washing and cleaning, boiling and mercerizing, bleaching, and dyeing are discussed. Special reference is made to fluorides, polyphosphates, gluconates, and synthetic organic products (e.g. ethylene diaminotetraacetic acid), and a relevant bibliography is given.

Reducing the shrinkage of viscose rayon fabrics

M. G. Kachurin. *Tekstil. Prom. 14, No. 12:* 32-34 (1954); *in Russian.* Through *Brit Cotton Ind. Research Assoc. 35:* 299 (1955).

Experiments carried out on rayon gabardine have shown that best results (shrinkage not exceeding 2.5-4 per cent) are obtained by impregnating the fabric with the finishing agent to which starch has been added, squeezing out the surplus, leaving the fabric for 10-15 minutes in the conditioner before drying, drying it in the rack dryer at a low drying rate, stretching on a stenter, and rolling it up at a reduced speed.

Increased wear resistance and quality of cotton fabrics

A. A. Kopev. *Tekstil. Prom. 14, No. 10:* 31-33 (1954); *in Russian.* Through *Brit. Cotton Ind. Research Assoc. 35:* 299 (1955).

Monochloro-urea, a new reagent for bleaching cellulose and cellulose hydrate fibers, was found more stable than sodium hypochlorite solutions; it damages the cellulose much less, even when using solutions with 4-6 g/1. of active chlorine. A new finishing agent for cellulosic fabrics is also reported, which is prepared by introducing bleached cotton fly or regenerated cellulose waste gradually into sodium zincate containing 90-100 g/1. sodium hydroxide and 20-25 g/1. zinc oxide, the mixture being mechanically stirred and cooled at a temperature of −5 to +5°C for 1½-2 hours. The solution obtained is transparent and homogeneous and does not contain undissolved fibers. For finishing, solutions containing 1.5-3 per cent cellulose are applied to the fabric at temperatures not exceeding 40-50°C; the impregnated fabric is then immersed in an acid bath to coagulate the finishing agent, and rinsed. Condensation of the finish can be obtained by treating the fabric with hot water (60-80° C) and also with concentrated alkali solution. In this way, the application of the finish can be combined with mercerization to obtain a better effect and to increase the wear resistance of the fabric by 25-30 per cent.

Mechanism of one-bath impregnating agents for water-repellent finishes

G. Wittman. *Melliand Textilber. 36, No. 1:* 63-65 (1955); *in German.* Through *Brit. Cotton Ind. Research Assoc. 35:* 300 (1955)

The effect of acid and alkaline ionized compounds on the adsorption phenomenon in textiles water-proofed with one-bath impregnating agents is examined, the resulting changes are discussed and conclusions are drawn regarding the adsorption mechanism. The adsorption of the components responsible for the hydrophobic properties of the impregnated fabric takes place in aqueous medium whose conditions are, therefore, decisive for the course of adsorption. The nature, quantity, chemical and physical state of the components taking part in the impregnating process are all involved in the adsorption mechanism.

Modern single bath impregnation

W. Otto. *Textil-Praxis (English ed.) No. 1:* 28-32 (March, 1955).

See *TTD 11:* 434 (1954).

Critical examination of cotton yarn mercerization

H. André. *Textil-Praxis 9, No. 11:* 1060-1065 (1954); *in German.* Through *Brit. Cotton Ind. Research Assoc. 35:* 298 (1955).

Practical aspects of mercerizing cotton and blended yarns are discussed, and advantages and disadvantages of wet and dry mercerization are enumerated. Some improvements in the construction of mercerizing machines are suggested, and reference is made to the so-called double mercerization and to acidification of the mercerized yarn. Sources of defects are listed.

Our mercerization experiment on dry carded yarn

T. M. Osinova, L. Y. Keerd and A. I. Mikhelev. *Tekstil. Prom. 14, No. 12:* 48-49 (1954); *in Russian.* Through *Brit. Cotton Ind. Research Assoc. 35:* 298 (1955).

Sections of cotton yarn (16 cm length) were used for making little tight balls (weight 0.1 g) which were dropped into a glass cylinder filled with 100 cc of the mercerizing liquid (caustic soda with, respectively, 10 g/1. Sulphirol 8 and 5 g/1. alcohol). The experiments were carried out at two concentrations of sodium hydroxide (density 1.263 and 1.231), and the sinking time of the balls was measured by means of a stop watch. Results are tabulated and show that complete wetting of the yarn takes place much more rapidly in the less concentrated sodium hydroxide solution. The yarn obtained has an improved quality and gives a 23.5 per cent higher winding output as compared with yarn mercerized by the usual method. The process has been applied successfully on an industrial scale. The dry yarn, when introduced into the mercerizing bath, does not change the concentration of the solution, thus ensuring uniform mercerization; it also dyes more intensively and uniformly. The process can also be applied to fabrics.

Modern bleaching methods

E. Togel. *Textil- u. Faserstofftech. 5, No. 1:* 33-34 (1955); *in German.* Through *Brit. Cotton Ind. Research Assoc. 35:* 296 (1955).

In this review of bleaching methods (continuous steam-peroxide method, bleaching methods developed in the Soviet Union, and sodium chlorite bleaching), the advantages of sodium chlorite bleaching are enumerated as follows: (1) sodium chlorite does not attack cellulose even at high concentrations and on prolonged treatment; (2) the DP of cellulose remains practically unchanged; (3) the alkali-solubility and swelling are not caused to increase in regenerated cellulose fibers; (4) the bleaching rate is particularly high in chemical fibers; (5) sodium chlorite is an excellent digesting agent for lignin-containing fibers; (6) cotton linters and woody constituents can be removed by means of sodium chlorite without preboiling with alkali and without the use of chlorine gas; (7) chlorite bleaching improves the quality and shortens the process; (8) the bleaching bath is not affected by the hardness formers in the water; (9) acid chlorite bleaching does not cause significant swelling of the fibers. 21 references.

Some notes on the technology of the single-stage continuous bleaching process

T. E. Bell, H. D. Terhune, H. L. Potter and M. H. Rowe (E. I. du Pont de Nemours and Co., Inc.). *Am. Dyestuff Reptr. 44:* P317-P319, P327 (May 9, 1955).

The technology of the single-stage continuous peroxide bleaching process as applied to cotton knit goods, yarn-dyed piece goods, and grey piece goods is discussed. Comparisons of results obtained, based upon the analysis of fabrics obtained from mill-scale runs, are made between single-stage processes and multiple-stage processes. Equipment requirements and operating data for typical single-stage processes are compared with requirements for typical multiple-stage systems. Relative equipment and operating costs are estimated.

Solution of cellulose in sodium zincate containing excess sodium hydroxide

P. K. Chouthoy, H. V. K. Udupa and P. C. Mehta. *Indian Textile J. 65:* 350-353 (March, 1955).

The work presented in this paper forms the subject of Indian Patent No. 49405 dated April 20, 1953 granted to the Ahmedabad Textile Industry's Research Association of Navrangpura, Ahmedabad, India. A study was made of homogeneous cellulose solutions in sodium zincate for finishing cotton textiles and the behavior of these solutions during storage. Patent and literature references.

The latexing and hot-stretching of tire-cord fabrics with special emphasis on nylon

C. A. Litzler. *Trans. Am. Soc. Mech. Engrs.* 77: 413-422 (May, 1955).

This paper deals specifically with cord fabrics as used in passenger and truck tires and summarizes the general processing requirements and tech-

niques as carried on in the United States. Emphasis is placed on nylon fabric.

Application of the THPC flame-retardant process to cotton fabrics

J. D. Guthrie, G. L. Drake, Jr., and W. Reeves (Southern Regional Research Laboratory). *Am. Dyestuff Reptr. 44:* P328-P332 (May 9, 1955).

Tetrakis (hydroxymethyl) phosphonium chloride, abbreviated THPC, is the key chemical used in a process that imparts flame resistance to cotton fabrics. An aqueous solution containing THPC, methylolmelamine, urea, and triethanolamine is applied with a padder. Drying, curing, and washing follow. A softener may be incorporated into the treating solution. The functions of each of the components of the system are discussed in relation to changes in the formulation of the treating solution to meet various requirements. Laboratory applications of the process to various fabrics, such as marquisette, heavy belting duck, twill, sateen, blanket fabrics, napped fabrics, etc., are described.

Melamine resins in textile finishing

F. Liewald. *Textil-Praxis 10, No. 1:* 79-86 (1955); *in German.* Through *Brit. Cotton Ind. Research Assoc. 35:* 262 (1955).

The author describes the use of a non-modified and a partially etherified methylol melamine (Cassurit MKF) as a finish for cotton and spun rayon piece goods, referring in particular to the production of embossed, silk, and chintz effects. The respective installations and factors responsible for the wash-fastness of the effects and for the breaking strength and abrasion resistance of the fabrics are discussed, and crease-resistant and anti-shrink finishes are briefly mentioned.

A survey of European crease-resist finishes. Part 1

H. W. Best-Gordon, E. Pieper and C. P. Tattersfield. *Man-Made Textiles 31:* 77-80 (May, 1955.)

A comparative study of standard commercial results from eight countries of a series of crease-resist finishing trials designed to reveal any fundamental finishing differences existing between one country and another.

DYEING AND PRINTING D 2

The pigment padding process with indanthrene dyes as jig-padding and jig-developing

K. Wojatschek. *Textil-Praxis 10, No. 1:* 71-73 (1955); *in German.* Through *Brit. Cotton Ind. Research Assoc. 35:* 259 (1955).

Preparation of the fabric, jig-padding and developing, oxidation, and aftertreatment of the dyeings carried out on heavy cotton drill are discussed and a practical example is given.

Naphthols: their properties and applications

Pfister Chemical Works. Ridgefield, N. J.: 1955. 108 p.

This naphthol manual is available on request.

The complex of textiles and color

N. Stafford. *Man-Made Textiles 31:* 81 (May, 1955).

A greatly simplified discussion of color and dyeing for the layman.

Barotor in practical application

F. S. Richardson (Waldrich Co.). *Am. Dyestuff Reptr. 44:* P360-P361, P366 (May 23, 1955).

The principles by which the Barotor dyeing machine is able to advance piece goods in full width through a dyebath under pressure without tension and without creasing have already been explained in previous articles, and also the possibilities of the use of this machine in dyeing fabrics of the newer synthetic fibers. The present author gives a first report on the actual operation of the machine on a commercial basis with full loads of 15 pieces and on the mechanical changes that have been dictated by experience in production to make the machine more practical. He suggests how two or three Barotors should be operated by one crew to make production economical according to modern standards.

Dyeing Orlon acrylic fiber and blends with other fibers

J. F. Laucius, R. A. Clarke and J. A. Brooks (E. I. du Pont de Nemours and Co., Inc.). *Am. Dyestuff Reptr. 44:* P362-P366 (May 23, 1955).

After explaining how Orlon alone is dyed, the authors show how special procedures are employed to color blends of Orlon with wool, rayon, cotton, nylon, and Dacron polyester fiber.

Quantitative methods for the study of vat printing processes

W. F. Liquorice. *Hexagon Digest No. 21:* 22-29 (February, 1955).

Precautions to be observed in the estimation of vat prints and special techniques for handling are described. The printing operation, processing the prints, cutting the patterns, the effect of col-

ored components of the print paste other than dye, calculation of results, and estimation of Formosul on a print are covered. 4 references.

Dyeing polyacrylic fibers

W. Kunze. *Textil-Praxis (English ed.) No. 1:* 38-42 (March, 1955).

See *TTD 12:* 66 (1955).

Application of substantive dyes in union dyeing

K. Wojatschek. *Textil-Praxis (English ed.) No. 1:* 45-47 (March, 1955).

Acrilan dyeing

W. H. Hindle (Chemstrand Corp.). *Am. Dyestuff Reptr. 44:* P323-P327 (May 9, 1955).

The dyeing of textiles containing all-Acrilan acrylic fiber, the dyeing of Acrilan-rayon, Acrilan-actetate, and Acrilan-rayon-acetate materials, and the dyeing of blends of Acrilan with wool and nylon are discussed. The following dyestuff classes are employed in a variety of ways to get a variety of colored effects: directs, disperse (acetate) dyes, chrome dyes, vat dyes, leuco esters, level-dyeing and neutral-dyeing simple acid dyes, and neutral-dyeing metalized acid dyes.

The importance of viscose rayon staple in dyeing and modern finishing

P. Haering. *Textil-Rundschau 10, No. 1:* 9-11 (1955); *in German.* Through *Brit. Cotton Ind. Research Assoc. 35:* 296 (1955).

Samples are given to show various finishes on spun rayon fabrics and fabric blends, and suitable dyeing and finishing methods are briefly discussed.

Fugitive dyeing of acetate rayon, removable by washing, by using cation-active textile assistants

M. Rau. *Textil- u. Faserstofftech. 4, No. 12:* 744-745 (1954); *in German.* Through *Brit. Ind. Research Assoc. 35:* 297 (1955).

Cellulose-acetate rayon fibers and yarns can be dyed in bright, but fugitive, colors by using acid wool dyes in the presence of small amounts of cationic compounds, especially lauryl pyridinium sulfate. The dye can be later completely removed by washing in warm water, with the addition of known anionic detergents.

Dyeing in standing baths

W. Schon. *Textil- u. Faserstofftech. 4, No. 12:* 745-746 (1954); *in German.* Through *Brit. Cotton Ind. Research Assoc. 35:* 296 (1955).

The use of standing baths for dyeing loose material (staple fiber) and yarn with substantive and sulfur dyes is discussed and the advantages are pointed out.

Dyeing jute yarn. Part 2

Dyer 113: 659-661 (April 29, 1955).

Loading the hanks in the Klauder-Welldon, Pegg, and Hussong machines and liquor circulation and salting are discussed.

Application of a method of integration in dyeing at high temperatures

L. Drijvers. *Dyer 113:* 695-701 (April 29, 1955).

The author describes a high-temperature dyeing method which consists in keeping the dyestuff concentration in the bath as low as possible throughout the dyeing period. This method is particularly advantageous when using a dyestuff possessing great affinity for the fiber and a slow rate of diffusion and especially when dyeing rayon cakes and spun-fiber packages.

Dyeing of acetate rayon with disperse dyes. Part 3. The influence of dispersing agents on the rate of dyeing

C. L. Bird, P. Harris and F. Manchester (Leeds Univ.). *J. Soc. Dyers Colourists 71:* 139-142 (March, 1955).

It is shown that the dispersing agents added to disperse dyebaths stabilize the dye suspension and act as restraining and retarding agents. With some dyes, especially at low temperatures, the normal retarding effect is reversed, probably owing to an increase in the rate of dissolution of crystalline particles of dye in presence of dispersing agent. 5 references.

Affinities of vat dyes in relation to their constitutions

R. H. Peters and H. H. Sumner (Imperial Chemical Industries Ltd). *J. Soc. Dyers Colourists 71:* 130-138 (March, 1955).

The affinities of a series of anthraquinone and carbocyclic vat dyes have been determined. The attraction for the fiber appears to arise from two main causes—polar or hydrogen bonding and non-polar or van der Waals forces. The results are analyzed in terms of these. It is found that, in a series of related compounds, a relationship exists between the affinity and the van der Waals forces as determined by the extinction coefficients of the dyes. 12 references.

Theories of dyeing. Part 2. Dyeing processes in action

H. A. Turner. *J. Soc. Dyers Colourists 71:* 96-104 (February, 1955).

Discussions in part 1 were concerned with completed dyeing processes, carried to the point

of equilibrium beyond which no further effect is to be expected. However, some 60 or 70% of the practical problems of dyeing occur while the dye is actually going on. Practically, the whole secret of obtaining levelness and penetration consists in making sure that the rate of adsorption of dye from solution by the fiber does not get in front of the regular and uniform mechanical distribution of that solution among all the textile fibers which make up the yarn or fabric which is being dyed. The kinetic study of dyeing is therefore at least as important as the static study.

Behavior of leuco vat dyes above 100° C.

S. Blackburn and M. R. Fox (Imperial Chemical Industries Ltd). *J. Soc. Dyers Colourists 71:* 80-89 (February, 1955).

This preliminary study of the behavior of vat dyes at high temperatures has included examination of the stability of these coloring matters, and some consideration has been given to the use of leuco-dye protective agents. A number of dyes stable at high temperatures are available, but known leuco-dye protective agents hold out little hope of extending the range to any great extent for the recently introduced package-dyeing systems. Examination of the behavior of vat dyes over a wide range of temperatures and of their rate-of-dyeing curves has led to the development of a cooling bath process for dyeing of cellulosic yarn packages. Improved migration, penetration, and level-dyeing behavior are features of high-temperature dyeing; dyeing times may be shortened, and the process should prove to be attractive for dyeing tightly twisted mercerized cotton yarns and similar textils. 15 references.

An introduction to the theory of wool dyeing. Part 1. Equilibrium theory of affinity

L. Peters. *J. Soc. Dyers Colourists 71:* 174-180 (April, 1955).

The aim of this paper is to explain in simple language the more quantitative aspects of the terms used in wool dyeing theory and the concepts behind them. 6 references.

The chemistry of synthetic dyes and pigments

H. A. Lubs. N. Y.: Reinhold, 1955. 734 p. American Chemical Society monograph series, No. 127 $18.50.

This comprehensive monograph is an up-to-date compilation of information on the chemistry of synthetic dyes. It has drawn heavily on the post-war FIAT and BIOS reports which made available the processes and practices of the German dye and organic chemical manufacturers. Each product selected for discussion has been chosen for its commercial or scientific importance or because the chemistry involved was of an unusual nature. Extensive bibliographies and indexes are included.

Package dyeing

A. P. Roy. *Textile World 105:* 123,230 (June, 1955).

Dyeing yarn in packages or on beams has developed into a precision dyeing method capable of reproducible results. Points to watch include: proper package density, choice of dyeing assistants, and selection of dyes with similar exhaustion rates.

Metallic pigments

G. W. Wendon (English Metal Powder Co.). *J. Soc. Dyers Colourists* 71: 125-130 (March, 1955).

The manufacture of metallic flake pigments is outlined. Their salient features are described and related to the more common applications. The production and the properties of dyed metal powders are discussed and contrasted with those of undyed metallic pigments as well as of ordinary pigments. Further examples are given of the combining of metallic appearance with spectral colors. 4 references.

Glycerine in textile printing

M. A. Lesser. *Textile Ind. 119:* 166-172 (June, 1955).

A review of the uses of glycerine in printing. 26 references.

Thickening agent with silicic acid gel

N. E. Fedorova and A. N. Burlakova. *Tekstil. Prom. 14, No. 10:* 33-35 (1954); *in Russion.* Through *Brit. Cotton Ind. Research Assoc. 35:* 297 (1955).

A new thickening agent is reported, claimed to be elastic, easily water-soluble and filterable. It is prepared by adding sodium hydroxide to a dilute starch solution, while stirring for 50-60 minutes, and admixing an aqueous solution of sodium silicate and, subsequently, velosite or any other lubricant or glycerine. Hydrochloric or sulfuric acid is then stirred in vigorously until a weakly alkaline reaction is obtained. The silicic acid gel forms fairly rapidly and the mass thickens. For mordant and azo dyes, acetic acid is added to obtain an acid reaction. The thickening agent is particularly effective in dyeing of rayon fabrics and printing of flannel.

Discharge printing on polyamide fabrics

B. Kramer. *Melliand Textilber. 36, No. 1:* 72-74 (1955); *in German.* Through *Brit. Cotton Ind. Research Assoc. 35:* 298 (1955).

The present development and problems involved in discharge printing of Perlon and nylon are reviewed, and white-discharge with acid and substantive dyes as well as color-discharge methods with discharge-resisting basic, acid, and vat-dyes are described. Directions are given and suitable dyes are listed for each process.

MECHANICAL PROCESSES D 3

Elastic theory of nip stresses and hysteresis effect

H. E. Malmstrom and J. P. Nash. *Tappi 37, No. 12:* 654-661 (1954). Through *Brit. Cotton Ind. Research Assoc. 35:* 262 (1955).

This paper deals with the heat in supercalenders and the mechanism by which it is produced. A theoretical study is made of roller deformation in the nip for the case of a steel roller bearing on a fiber bowl; this deformation is responsible for all the heat production. A relationship for energy loss in a supercalender is developed. Temperature distribution in fiber-filled calender bowls is discussed.

DRYING D 4

Evaporation of water and consumption of heat on textile drying ranges in comparison with the initial and the ultimate humidity

J. Hueber. *Textil-Praxis (English ed.) No.1:* 43-44 (March, 1955).

See *TTD 12:* 72 (1955).

The problem of drying finished fabrics from native cellulose

R. Allscher and E. Kiefer. *Textil-Praxis 10, No. 1:* 86-88 (1955); *in German.* Through *Brit. Cotton Ind. Research Assoc. 35:* 262 (1955).

The drying system described, in which the temperature of 100°C and relative humidity of 30 per cent are maintained constant during the whole treatment, was found suitable for drying crease-proofed cotton fabrics. By selecting a soft resin which is able to condense at low temperature and by addition of a softener, which acts specifically on the resin and on the native cellulose fibers, it was possible to eliminate almost completely the loss in breaking strength of a crease-proofed cotton poplin.

Drying by radiant heat

R. Ranson. *Textile Bull. 81:* 84-86 (May, 1955).

This report on the application of electric heat to textile process drying, based on radiant heater tests conducted by the Department of Electrical Engineering at Duke University, was presented at last Fall's Southern Textile Conference of the American Institute of Electrical Engineers.

Drying of textiles

R. S. Prayag. *Indian Textile J. 65:* 346-349, 356 (March, 1955).

Survey of present day rapid drying methods and of some of the fundamental principles governing the drying operation.

The revolving rod drier for modern hank drying

H. Kittel. *SVF Fachorgan Textilveredlung 10, No. 1:* 14-17 (1955); *in German.* Through *Brit. Cotton Ind. Research Assoc. 35:* 300 (1955).

The disadvantages of drying hank yarn in drying chambers (uneven drying, overdrying) and tunnel-driers (brittleness and uneven handle of the material) are briefly discussed, and constructional characteristics of a new drier with revolving stainless-steel rods are described. This drier eliminates the disadvantages of the previous installations, the uniformly-dried yarn showing soft full handle.

TESTING AND MEASUREMENT E

Aids to x-ray fiber photography

L. Brown and A. W. Porter. *J. Sci. Instr. 31, No. 10:* 389 (1954). Through *Brit. Cotton Ind. Research Assoc. 35:* 271 (1955).

Three accessories are described: a fiber-sample holder and stretcher, a 90° arc for film specimens, and a hemi-cylindrical shield for use with the 3-cm radius cassette. The last mentioned has been designed to eliminate eccentricity errors in the measurement of spacings when the sample cannot be rotated and an internal calibration of the sample is not practicable.

Fluorescence microscopy

J. King. *Research 8:* 191-199 (May, 1955).

An account is given of the mechanism of fluorescence microscopy, supplemented by the author's experience and measurements. Selected applications of the technique are described—fluorescence microscopy enables substances to be detected which are not visible under the ordinary microscope. 39 references.

1955 instrumentation survey

Fibres 16: 153-160 (May, 1955).

Measurement of yarn irregularity and fiber length

E. Dyson (Bradford Technical College). *Fibres 16:* 161-164 (May, 1955).

The author discusses the levelness of worsted yarns, formerly assessed by visual examination, the measurement of fiber length, and the instruments used for these examinations.

Measuring yarn and rotational speeds

K. J. Butler and W. T. Cowhig (British Rayon Research Assoc.). *Skinner's Silk and Rayon Record 29:* 506-508 (May, 1955).

This paper describes the Briggs/B.R.R.A. Speedotex, a dual purpose instrument, based on the stroboscopic principle, for measuring speed of yarn in textile machinery and for measuring speed of revolution of spindles, gear wheels, shafts, etc. It is convenient for use in mills for routine work. Photographs. Diagrams.

Electronic measuring instruments

E. H. W. Banner. London: Chapman and Hall, 1954. 395 p. $6.30.

The author surveys the whole field of electronic measurement for very high and very low values, for remote indication, and for increased accuracy. The scope has been extended to include those instruments which contain some electronic element (Part 4). Part 1 covers the characteristics of the indicating instruments used in electronic measurement, Part 2 describes the electronic circuits, and Part 3 gives the application of the circuits to the complete instrument.

Fatigue tests on fibers, yarns and fabrics. Part 1

W. Wegener. *Textil-Praxis 9, No. 11:* 1011-1017 (1954); *in German.* Through *Brit. Cotton Ind. Research Assoc. 35:* 302 (1955).

Devices for testing textiles subjected to stretching under constant load are reviewed, and results obtained on fibers, yarns and fabrics are discussed and presented in the form of 3-dimensional phase diagrams which show the different behavior of various materials.

A textile tester of the electric inductance gauge type

K. Ishikawa and I. Matsumoto. *J. Soc. Textile Cellulose Ind. Japan 10, No. 12:* 625-629 (1954); *in Japanese (English summary).* Through *Brit. Cotton Ind. Research Assoc. 35:* 302 (1955).

The apparatus described for measuring the load-deformation properties of fibers, yarns and fabrics consists mainly of an electric induction gauge in which the reluctance of the magnetic circuit is varied by changing the air gap. The application of the apparatus is illustrated by examples.

Remarks on testing methods for the determination of color fastness in textiles. Part 1

P. Rape. *Textil-Praxis 9, No. 11:* 1052-1058 (1954); *in German.* Through *Brit. Cotton Ind. Research Assoc. 35:* 308 (1955).

German standard testing methods for determining the fastness of dyeings to alkali (DIN 53 963), brightening agents (DIN 53 962), kier-boiling (DIN 53 965), ironing (DIN 53 960), chlorine (DIN 53 967), decatizing (DIN 53 975), carbonizing (DIN 53 971), and light (DIN 53 952) are critically examined, and suitable testing devices are described and illustrated.

FIBERS E 1

Simple methods for the preparation of thin fiber sections and fiber impressions

W. Steffens. *Textil-Praxis 10, No. 1:* 3-8 (1955); *in German.* Through *Brit. Cotton Ind. Research Assoc. 35:* 271 (1955).

A very inexpensive and rapid method for the preparation of fiber cross-sections is described, which consists in piercing a cork stopper (previously soaked) with a needle and drawing through it the thread to be tested so that its end projects about 15 mm beyond the cutting surface. The end is untwisted as much as possible, a drop of UHU-adhesive (nitrocellulose) is spread over it, and the thread is immediately drawn into the cork, the adhesive being allowed to dry by heating the cork slightly. After ten minutes, the preparation is ready to be cut with a thin razor blade into sections. The sections obtained (25-35 microns) are thin enough for routine microscopical examination in the plant. The same adhesive can be used for making impressions of the fibers. The homogeneous hard film obtained gives excellent negatives after removal of the fiber.

Speedy method of obtaining true mean fiber diameter for a mass of fibrous material

A. Pimblett (Fiberglass Ltd). *Fibres 16:* 171-172 (May, 1955).

An equation has been evolved governing the resistance offered to air flow by a plug of fibrous material. After an initial calibration, the resistance offered by a plug can be read directly in terms of mean diameter. Apparatus and calibration are described.

Speedar measurement of fiber fineness and compressibility

K. L. Hertel and C. J. Craven (University of Tennessee). *Textile Research J. 25:* 429-432 (May, 1955).

The Speedar is a self-contained air-flow instrument using low-pressure differential for measuring the specific area of fineness of fibers without altering the relative humidity surrounding the fiber. It also measures a new property called packing modulus. It tests a 5- to 10-g sample and is insensitive to fiber orientation. It is rapid and simple to operate. The reproducibility of fineness measurements is as good as other air-flow instruments. 6 references.

Small particle x-ray scattering by fibers, size and shape of micro-crystallites

A. N. J. Heyn (Clemson College). *J. Appl. Phys. 26:* 519-526 (May, 1955).

A theoretical and experimental analysis is given of small particle x-ray scattering by fibers. 15 references.

Quantitative micro-analysis of fibers. (Quantitativ-Mikroskopische Analyse von Faserstoffen)

A. Herzog. Akademie-Verlag, Berlin, 1954. 55 p. *In German.* Through *Brit. Cotton Ind. Research Assoc. 35:* 303 (1955).

After a brief review of some microscopical tests on fibers, the author deals in detail with the quantitative microscopical analysis of fibrous materials, with particular reference to the determination of the mixing ratio in textile (yarn)- and paper-blends. 70 photomicrographs. 40 references.

YARNS E 2

The Zivy tension meter

Crowther Ltd. *Filaments 22, No. 1:* 18 (1954). Through *Brit. Cotton Ind. Research Assoc. 35:* 274 (1955).

A compact yarn tension meter is reported. It is available in seven ranges for maximum tensions of from 10 to 175 g.

Frequency of yarn breakage

E. Meyer. *Textil-Praxis 10, No. 1:* 63-65 (1955); *in German.* Through *Brit. Cotton Ind. Research Assoc. 35:* 274 (1955).

The apparatus, described for testing the yarn as regards its resistance to breaking on the loom, imitates the stress occurring during weaving and causing fatigue phenomena in the yarn, particularly the tension during shed formation and the blow of the lay. The fatigue coefficient is determined on the yarn whose movement corresponds to that of the warp yarn during weaving on the loom. The value obtained on this apparatus can be regarded as the dynamic breaking strength or degree of weavability, depending upon (1) quality of the raw material, (2) yarn count, (3) tension, (4) yarn regularity, and (5) extensibility due to the preceding factors.

Cylindrical "stator" for measuring the electrical charge on moving objects, e.g., textile threads, during processing

H. Israel and H. Meinhold. *Textil-Praxis 10, No. 1:* 8-10 (1955); *in German.* Through *Brit. Cotton Ind. Research Assoc. 35:* 274 (1955).

The apparatus described consists of a measuring cylinder working on the principle of static induction, an amplifier, and a recording instrument. The threads tested run through the cylindrical measuring sleeve without touching it. The measurements are not affected by the oscillations of the textile thread; the sensitivity of the apparatus is 3×10^{-12} Coulomb per 1 cm of the running thread.

Management of quality—studies on cotton yarn imperfections

C. C. Wilson (West Point Manufacturing Co.). *Textile Research J. 25:* 446-451 (May, 1955).

The electronic instrument, the Neptel, which counts yarn imperfections, is discussed.

Simplified determination of yarn diameter. Part 1

B. L. Whittier and S. A. Mavlankar. *Textile Bull. 81:* 82-84 (May, 1955).

This is the first of two articles on a suggested method of calculating the diameter of yarns, and explaining the relationship of yarn diameters to the compactness of a fabric, which, while requiring some study, can be used by any fabric engineer. While the calculations were drawn up for use with spun yarns, they can be adapted with certain allowances for determination of filament yarn diameters.

Pacific integrator

General Electric Co. *Textile Age 19:* 38-40 (June, 1955).

A unit developed for use with the Pacific Evenness Tester is described and illustrated.

The tensile strength tester by Schumacher

N. Reinfeld. *Melliand Textilber. 36, No. 1:* 16-19 (1955); *in German.* Through *Brit. Cotton Ind. Research Assoc. 35:* 305 (1955).

This tester, by means of which the tensile strength and elongation of 100 threads can be tested simultaneously, has been used for viscose, cuprammonium, Perlon, etc., staple yarns in order to ascertain whether collective load (load at 5 per cent yarn breakage) and critical elongation

(elongation at 5 per cent yarn breakage) are suitable criteria for the practical evaluation of yarn quality, and whether there is a relationship between these two values measured by the Schumacher tester and the values determined as mean load at break and mean load elongation at break for single threads on the Schopper tester. The correlation coefficients show that there is an almost functional load, and also a distinct relationship between the critical elongation and the mean elongation at break. These values are thus useful for rapid evaluation of yarn quality. The apparatus has been recently improved by fitting into it an adjustable electric drive and fixing three pull indicator fingers to the elongation indicator.

Analysis of the irregularity of yarns, rovings and slivers from their wavelength spectra

E. Felix. *Textil-Rundschau 10, No. 1:* 1-9 (1955); *in German.* Through *Brit. Cotton Ind. Research Assoc. 35:* 306 (1955).

It has been found that the appearance of finished products (woven or knitted) is not always directly related to the irregularity. This phenomenon can be explained by analysis of the yarn cross-section represented in the form of the wavelength spectrum, from which the appearance of the finished product, insofar as it depends upon the yarn cross-section, can be predicted more accurately. Excessive irregularity in the cross-section curve indicates a processing fault. The testing apparatus consists of a regularity tester, and integrator, a spectrograph, and a recording instrument for registering the wave-length spectrum. Spectrograms can also be obtained on rovings and slivers.

FABRICS E 3

The use of copper and permanganate number in the evaluation of damages caused during bleaching

L. Teichmann. *Textil- u. Faserstofftech. 4, No. 12:* 704-706 (1954); *in German.* Through *Brit. Cotton Ind. Research Assoc. 35:* 307 (1955).

In order to elucidate the relationship between various damages occurred during bleaching of natural and synthetic fibers, bleached, but undamaged, cotton and staple fibers were subjected to various damaging factors (active chlorine, acid, and peroxide) so as to obtain (a) comparable results and (b) homogeneous, pure oxy- or hydrocelluloses. Tearing strength and copper and permanganate numbers were determined. Results show that, in many cases, the copper and permanganate numbers allow a more accurate evaluation only in combination with tearing-strength determination. Thus, reduced tearing strength and increased copper and permanganate numbers indicate that the damage is due to active chlorine, whereas reduced tearing strength and unchanged copper and permanganate numbers point to damages caused by acid or by peroxide bleaching.

New technique gives actual towel absorbency

E. S. Rudnick (Wamsutta Mills). *(Letter to the editor). Textile Ind., 119:* 195-197 (June, 1955).

The negative spray absorbency test used for quality control and evaluation of all towels at Wamsutta.

Moisture and strength relations of Australian flax canvases

W. Shepherd. *Australian J. Appl. Sci. 5, No. 3:* 249-254 (1954). Through *Brit. Cotton Ind. Research Assoc. 35:* 275 (1955).

Equilibrium moisture regains under various conditions of temperature and relative humidity, and their effects on tensile breaking load, have been determined for a wide range of Australian flax canvases. The sorption isotherms obtained are generally similar to those of other cellulosic materials. Tensile breaking loads increase with increase of regain.

Testing of textiles: bursting test

German Standards Committee. *Textil-Praxis 10, No. 1:* 56-59 (1955); *in German.* Through *Brit. Cotton Ind. Research Assoc. 35:* 274 (1955).

The draft of the German standard DIN 53860 for measuring the resistance to bursting and the degree of stretching of flat fabrics during application of air or liquid pressure specifies the purpose of the test, sampling and preparation of the sample, number of samples, testing apparatus, method of testing, evaluation of the results (with example), and data to be included in the test report.

Graphical determination of the weight of yarn constituting a fabric

V. Luzet. *Rayonne et Fibres Synthet. 11, No.* 9-16 (1955); *in French...* Through *Brit. Cotton Ind. Research Assoc. 35:* 306 (1955).

The determination can be carried out on the basis of the three graphs given. Graph 1 determines the weight of threads (warp or weft), contained in a rectangle of the fabric 1 m long and 1 cm wide, as a function of yarn count and number of threads per cm; graph 2 shows, for the warp, the weight/m corresponding to the width of the

fabric (excluding shrinkage) and, for the weft, the weight/m of the working width; graph 3 makes it possible to determine, for a predetermined metric count and number of threads/cm, the weight/m of the fabric in the warp direction at a certain shrinkage. The use of the graphs is explained by examples.

INDUSTRIAL ENGINEERING F

QUALITY CONTROL F 3

ASQC National Convention Transactions 1955

American Society for Quality Control, 50 Church Street, New York 7. 1955. 748 p. $3.50.

The following papers are on textile applications: *The standardization of raw materials, processes and products in textile manufacturing,* by O. P. Beckwith, p. 543-552; *Control chart applications,* by N. L. Enrick, p. 1-4; *Visual inspection of cloth,* by G. W. Haynes, p. 159-165; *Quality control, a new technique in the clothing industry with a shortage of skilled workers,* by R. L. Murray, p. 57-60.

Textile quality control papers. Volume 2

American Society for Quality Control. Textile Division, 1955. 238 p. Copies may be ordered at $4.00 from D. S. Hamby, Editor, School of Textiles, North Carolina State College, Raleigh, North Carolina.

The following papers are presented in this volume: *A method of calculating theoretical fineness for cotton blends,* by E. J. Jennings and H. G. Lewis, p. 1-12; *Quality and the cost accountant,* by J. A. Fife, p. 13-15; *The application of statistical quality control to job conditions,* by H. E. Foster, p. 16-21; *Too good quality—new techniques for setting economic standards,* by S. I. Rudo, p. 22-31; *Successful in-process controls,* by O. P. Beckwith, p. 32-45; *Evaluating visual quality,* by L. Mueller, Jr., p. 46-58; *Quality control and the consumer,* by L. A. Fluck, p. 59-66; *How analysis of variance works,* by T. R. Bainbridge, p. 67-78; *Selling quality control to supervisors,* by P. H. Burrus, Jr., p. 79-85; *Ends down causes in the spinning room,* by J. L. Delany, p. 86-92; *Application of the control chart concept to production control and sales planning,* by D. Deming, p. 93-106; *Quality is our problem,* by W. H. Esslinger, p. 107-113; *Statistical quality control in textile processing,* by N. L. Enrick, p. 114-128; *On the design of a test,* by D. S. Chambers, p. 129-135; *Mill application of Speedar in fiber testing,* by G. H. Bass, p. 136-138; *An evaluation and comparison of evenness testers,* by W. T. Waters, p. 139-168; *Elementary discussion on X-bar and R charts,* by J. V. Brookshire, Jr., p. 169-175; *Some aspects of fabric quality from the finisher's point of view,* by L. W. England, p. 176-182; *The control of carding wastes and its influence on yarn quality,* by J. F. Bogdan, p. 183-197; *Quality and high production carding,* by S. H. Sherman, p. 198-202; *Quality considerations in carding and spinning coarse denier rayon,* by W. W. Bowman, p. 203-208; and *Speedar measurement of fiber fineness and compressibility,* by K. L. Hertel and C. J. Craven, p. 209-217. Reports are also presented for the Picker Task Group, the Staple Fiber Yarn Task Group and the Fabric Imperfection Task Group. A bibliography covering 1954 contains 27 references.

Management of quality: methods of observation in cotton spinning

W. J. Blydenstein (N. V. Katoenspinnerij, Netherlands). *Textile Research J. 25:* 452-461 (May, 1955).

In the first portion of his talk, the author establishes the need for more adequate methods of observation in cotton spinning. He recounts the evolution of the cotton textile mill as we know it today, cites the effects of this change on the machinery operator, points out some problems peculiar to the manufacture of textiles, and establishes the need felt by operating executives for "better visibility" of the manufacturing operation. The second portion of the paper was composed of colored slides illustrating processes in the author's mill at Enschede, Holland. These pictures show devices which provide "better visibility" of the manufacturing operation in the mill. Typical illustrations chosen from this group, with brief explanatory notes, are printed.

Modern mill controls. Part 5. Pinning down quality responsibility

N. L. Enrick. *Modern Textiles Mag. 36:* 50-54,64 (June, 1955).

Shows how the quality control laboratory, in cooperation with the mill's time study department, can aid with the following tools for assignment of quality responsibility: (1) standard operating instructions which will insure quality production, an example being given from the quality control action on stenter frames; (2) authority and responsibility sheets, an example being taken from a knitting mill; (3) quality bonus system, with several examples from woolen, worsted and synthetic mills; (4) establishment of centralized controls where needed; (5) lining-up procedures for overall mill control, aided by summaries and control charts.

PATENT CHECKLIST

U. S. Patents may be obtained from the U. S. Patent Office, Washington 25, D. C., for 25 cents per copy. Photostatic copies of foreign patents are available. Charges for these photostats are based on the number of pages in the patent.

YARN PRODUCTION B

Feeding means for machinery operating on textile fibrous material

W. A. Hunter, F. Singleton and L. Witcombe (to T. M. M. (Research) Ltd). BP 719 495, December 1, 1954. Through *BCIRA 35:* 250 (1955).

Mechanism for advancing and receding the comb that removes surplus fiber from the spiked lattice of a machine

A. Marvin (to T. M. M. (Research) Ltd). BP 719 347, December 1, 1954. Through *BCIRA 35:* 250 (1955).

Weighing of webs of flexible fibrous material

C. G. Gillibrand (to Robinson and Sons Ltd). BP 718 732, November 17, 1954. Through *BCIRA 35:* 250 (1955).

Apparatus for removing wool grease from wool wash

P. Bugard (France). USP 2 709 523, May 31, 1955.

A process for decreasing the thickness of a band of fibers while increasing the width

A. Lindel and H. Hofer (to American Enka Corp.). USP 2 709 282, May 31, 1955.

OPENING, PICKING, FIBER PREPARATION B 1

Fiber aerating, blooming and cleaning machine

E. G. Sofio (to Hercules Manufacturing Co.). USP 2 709 281, May 31, 1955.

DRAWING AND ROVING B 3

Means for adjusting the working length of the aprons in a double apron drafting device

W. H. Watson and R. J. Summers (to T.M.M. (Research) Ltd). BP 718 926, November 24, 1954. Through *BCIRA 35:* 250 (1955).

Method of drafting and apparatus

L. F. Guimbretiere, A. G. Pollet and E. J. Sorez. BP 719 355, December 1, 1954. Through *BCIRA 35:* 251 (1955).

Double belt drawing mechanism

K. H. Neu and E. Rogner (to SKF Kugellagerfabriken, Germany). USP 2 708 290, May 17, 1955.

SPINNING, WINDING, TWISTING B 4

Thread suction means for spinning machines

Lufttechnische GmbH (Germany). BP 718 277, November 10, 1954. Through *BCIRA 35:* 252 (1955).

Thread suction installations for spinning machines

Lufttechnische GmbH (Germany). BP 718 319, November 10, 1954. Through *BCIRA 35:* 252 (1955).

Means for the spray painting of textile bobbins and the like

G. Livsey, L. S. Sutton and J. A. Silverwood (to Mutual Mills Ltd). BP 718 426, November 17, 1954. Through *BCIRA 35:* 252 (1955).

Means for effecting a fine adjustment of the counter-faller of a mule

L. Cole. BP 718 496, November 17, 1954. Through *BCIRA 35:* 251 (1955).

Improvement of the tenacity of regenerated cellulose tire cord yarns by additional twist when the yarn is moist

J. W. Illingworth (to Dunlop Rubber Co. Ltd). BP 719 060, November 24, 1954. Through *BCIRA 35:* 252 (1955).

Stopping devices for spinning frames, particularly jute spinning frames

W. Langsdorff and W. von Prondzinsky (to Heidenreich and Harbeck). BP 719 415, December 1, 1954. Through *BCIRA 35:* 252 (1955).

Spinning frame with a double row of spindles driven by worm and worm wheel gears

Hispano Suiza (Suisse) Soc. Anon. BP 719 722, December 8, 1954. Through *BCIRA 35:* 251 (1955).

Self-acting mule: improvement as regards winding of threads on to the spindles, and taking in of the carriage towards the roller beam

C. Bhide. BP 719 727, December 8, 1954. Through *BCIRA 35:* 251 (1955).

Composite spindle blade and whorl assembly of the type adapted to support tube style bobbins

J. D. Gleitz (to Marquette Metal Products Co.). USP 2 708 336, May 17, 1955.

Exhaust plant for spinning machines for catching and removing thread ends

H. Thoma (Switzerland). USP 2 708 829, May 24, 1955.

FABRIC PRODUCTION C

Automatic charging elevator for feeding pirn tubes to a cleaning machine

Costruzioni Meccaniche Ge & Bacci degli Eredi di Mario Ge (Italy). BP 718 246, November 10, 1954. Through *BCIRA 35:* 254 (1955).

Lace machines and thread fault detecting and indicating means for lace machines

E. Woolley (to Hallcroft Electrical and Mechanical Apparatus Co. Ltd). BP 717 741, 762, November 3, 1954. Through *BCIRA 35:* 258 (1955).

Felting manufacture

R. R. Walton and W. B. Clifford (to L. S. Adams Engineering, Inc.). USP 2 708 303, May 17, 1955.

WARPING, SLASHING, YARN PREPARATION C 1

Device for separating threads from an end-to-end leased warp

Koefoed, Hauberg, Marstrand og Helweg Aktieselskabet Titan (Denmark). BP 718 251, November 10, 1954. Through *BCIRA 35:* 254 (1955).

Regenerated cellulose fibers treated prior to knitting, weaving, winding or twisting with aqueous neutral or weakly acidic solutions of weakly ionogenic anion-active compounds

Metallgesellschaft AG (Germany). BP 719 535, December 1, 1954. Through *BCIRA 35:* 256 (1955).

Creel structure

F. R. Borges, Jr. (to American Viscose Corp.). USP 2 710 155, June 7, 1955.

WEAVING C 2

Control of heddles in a circular loom

Qualitex Société Dunod & Cie (France). BP 718 103, November 10, 1954. Through *BCIRA 35:* 257 (1955).

Means for filling the gap that may occur when the weft stop-motion comes into play on a circular loom

R. N. and J. Catry (to Fairwest (U.K.) Ltd). BP 718 447, November 17, 1954. Through *BCIRA 35:* 256 (1955).

Circular loom having cam-operated heddles

R. N. Low and J. Catry (to Fairwest (U.K.) Ltd). BP 718 510, November 17, 1954. Through *BCIRA 35:* 256 (1955).

Weft change-box mechanisms for looms

F. S. Eves (to Munster Simms & Co. Ltd). BP 718 691, November 17, 1954. Through *BCIRA 35:* 258 (1955).

Weft stop-motion device for looms

R. Antonicek (to Prototypa Nar. Pod.). BP 718 733, November 17, 1954. Through *BCIRA 35:* 258 (1955).

Circular looms in which the cam-operated heddles may be moved to an extreme position when access to a shuttle is necessary

R. N. Low and J. Catry (to Fairwest (U.K.) Ltd). BP 718 818, November 24, 1954. Through *BCIRA 35:* 257 (1955).

Automatic shuttle-changing mechanism in looms

Valentin Patent Gesellschaft and Textilmaschinenfabrik Schwenningen GmbH (Germany). BP 718 853, November 24, 1954. Through *BCIRA 35:* 257 (1955).

Narrow fabric loom on which the weft is inserted in double picks

F. Coppa (Italy). BP 719 083, November 24, 1954. Through *BCIRA 35:* 256 (1955).

Attachments to looms for trapping and holding weft thread ends

N. Selby (to Parkland Manufacturing Co.). BP 719 384, December 1, 1954. Through *BCIRA 35:* 258 (1955).

Pattern card cylinders for jacquards

H. Batty and J. Ashworth (to J. T. Hardaker Ltd). BP 719 473, December 1, 1954. Through *BCIRA 35:* 257 (1955).

Circular loom shuttle

R. N. Low and J. Catry (to Fairwest (U.K.) Ltd). BP 719 547, December 1, 1954. Through *BCIRA 35:* 257 (1955).

Loom with stationary weft supply

C. S. Aspden. BP 719 693, December 8, 1954. Through *BCIRA 35:* 256 (1955).

Vertical loom in which the shuttle is supported during its throw by the horizontal reed

C. Kiener (France). BP 719 703, December 8, 1954. Through *BCIRA 35:* 256 (1955).

Warp tension compensator to equalize changes in warp tension occurring on opening of the shed on a circular loom

R. N. Low and J. Catry (to Fairwest (U.K.) Ltd). BP 719 721, December 8, 1954. Through *BCIRA 35:* 257 (1955).

Automatic weft yarn renewal in looms

C. Valentin, R. Valentin, E. Haller and F. Schuhbauer (to Textilmaschinenfabrik Schwenningen GmbH). BP 719 914, December 8, 1954. Through *BCIRA 35:* 258 (1955).

Loom harness

J. J. Kaufmann (to Steel Heddle Mfg. Co.). USP 2 708 455, May 17, 1955.

Tension controlling means

W. Bradley (England). USP 2 708 456, May 17, 1955.

Beat-up for Axminster loom

F. B. Schofield and A. Sutcliffe (to T. M. M. (Research) Ltd). USP 2 709 457, May 31, 1955.

Weaving pile fabric having high and low loops

F. W. E. Hoeselbarth (to C. H. Masland & Sons). USP 2 709 458, May 31, 1955.

Control for selvage thread cutter

W. E. Kimmel (to Crompton & Knowles Loom Works). USP 2 709 459, May 31, 1955.

Loop pile attachment for Axminster looms and method of weaving

J. T. White (to Fieldcrest Mills, Inc.). USP 2 710 028, June 7, 1955.

Pile wire loom mechanism

E. W. Shertz and R. S. Work (to Landsdowne Steel and Iron Co.). USP 2 710 029, June 7, 1955.

Shuttle box control mechanism

R. S. Work (to Landsdowne Steel and Iron Co.). USP 2 710 030, June 7, 1955.

KNITTING C 3

Suspension comb for hand-operated knitting machines

E. Piltz (to Willy Werner Lenkeit, Germany). USP 2 708 355, May 17, 1955.

Hand wheel drive for circular knitting machines

S. S. Leotta and P. N. Patt (to Scott & Williams, Inc.). USP 2 708 837, May 24, 1955.

Method of knitting an article of tubular seamless hosiery

P. L. Thurston (to Interwoven Stocking Co.). USP 2 708 838, May 24, 1955.

Method of manufacturing a hand knitting machine

M. Tanaka (Japan). USP 2 708 839, May 24, 1955.

Full-fashioned knitting machine

C. Scheller (to Gebr. Boehringer GmbH). USP 2 708 840, May 24, 1955.

Yarn tensioning apparatus for knitting machines

A. J. Lumsden. USP 2 708 841, May 24, 1955.

Heating arrangement for the center bed of full-fashioned knitting machines

C. F. Meyer (to Textile Machine Works). USP 2 709 350, May 31, 1955.

Yarn changing mechanism in a circular, independent needle, knitting machine

A. Bouthillette and E. St. Pierre (to Hemphill Co.). USP 2 709 351, May 31, 1955.

Circular knitting machine

R. H. Lawson (to Scott & Williams, Inc.). USP 2 709 352, May 31, 1955.

Circular knit hosiery

L. Poole (to Burlington Industries, Inc.). USP 2 709 353, May 31, 1955.

Knitting machine with a device for temporarily securing the needles in their position during a working operation

E. Hafner (to Dubied Machinery Co.). USP 2 709 906, June 7, 1955.

FABRICS C 4

Coated Terylene fabrics that drape well and have very high electrical breakdown voltages

R. Hurd (to Imperial Chemical Industries Ltd). BP 718 218, November 10, 1954. Through *BCIRA 35:* 268 (1955).

Thermo-insulating fabric having warp and weft formed by twisting together a slack, coarse yarn of wool or hair and a taut, fine yarn having greater strength

U. Giandomenici. BP 718 274, November 10, 1954. Through *BCIRA 35:* 259 (1955).

Non-woven pile carpet or fabric

H. van Issum (to Fabric Development Co. Ltd). BP 719 465, December 1, 1954. Through *BCIRA 35:* 269 (1955).

Fabric printed in right-angled sector figure patterns for easy cutting out into gored skirts having circular patterns

Hasselbach & Co. (Denmark). BP 719 596, December 1, 1954. Through *BCIRA 35:* 259 (1955).

Fused fabric assemblies

L. Bihaly (to Industrial Accountancy Partnership Ltd). BP 719 614, December 8, 1954. Through *BCIRA 35:* 269 (1955).

Triple-ply corrugated fabric

B. H. Foster (to United States Rubber Co.). USP Reissue 24 007, May 24, 1955.

Velvet pile carpet fabric

R. C. Gebert (to James Lees and Sons Co.). USP 2 708 457, May 17, 1955.

Pile fabric

R. C. Gebert (to James Lees and Sons Co.). USP 2 708 458, May 17, 1955.

Temperature control for electric blankets

J. M. Moran and H. K. Mackechnie (to Knapp-Monarch Co.). USP 2 709 216, May 24, 1955.

Pile fabric having high and low loops

F. W. E. Hoeselbarth (to C. H. Masland & Sons). USP 2 709 460, May 31, 1955.

Pile fabrics

F. P. Groat (to Magee Carpet Co.). USP 2 709 461, May 31, 1955.

FINISHING AND CHEMICAL PROCESSING D

Tool for clipping off loose ends from hosiery, tailored garments, dresses, etc.

H. E. Stout (to Textile Trimming and Boarding Machine Co.). BP 718 152, November 10, 1954. Through *BCIRA 35:* 259 (1955).

Acceleration of processes for the treatment of a running warp or fabric with a gaseous medium (which may carry a dye or chemical agent)

H. Kabelitz (to Gebrueder Sucker GmbH). BP 718 415, November 17, 1954. Through *BCIRA 35:* 255 (1955).

Sewing machine with electrically-heated presser foot point which trims and welds the raw edges of a nylon seam as it is being stitched

S. S. L. Bernard (France). BP 719 907, December 8, 1954. Through *BCIRA 35:* 259 (1955).

CHEMICAL PROCESSES D 1

Process for improving the whiteness or color of materials with certain oxacyanine salts

J. D. Kendall and D. J. Fry (to Ilford Ltd). BP 718 119, November 10, 1954. Through *BCIRA 35:* 263 (1955).

Means for continuously sizing and/or dyeing an individual thread

S. Rivetti (Italy). BP 718 460, November 17, 1954. Through *BCIRA 35:* 255 (1955).

Process for sodium chlorite bleaching cellulose fibers

Deutsche Gold und Silber Scheideanstalt (Germany). BP 718 563, November 17, 1954. Through *BCIRA 35:* 263 (1955).

Dry-cleaning process for simultaneously removing water-soluble and solvent-soluble impurities

M. Blau. BP 719 114, November 24, 1954. Through *BCIRA 35:* 276 (1955).

Apparatus for squeezing textile material

E. Kusters, K. Quoos and P. Urban. BP 719 289, December 1, 1954. Through *BCIRA 35:* 269 (1955).

Regulating device for heaters or boilers for sizing, finishing and dye baths

Gebrueder Sucker GmbH (Germany). BP 719 462, December 1, 1954. Through *BCIRA 35:* 255 (1955).